HU RUWEI

Analysis of biosecurity within a national framework

Biosecurity is part of government's effort to prevent threats from adverse biological risk factors, in an aim to maintain the security and interest of the nation's society, economy, ecology, and public health. Since the 1970s, situations caused by biosecurity risks around the world have become increasingly grim and urgent. The outbreak of sudden and emerging pandemics, infectious diseases, pestilence, invasions of alien species, and attacks from chemical and biological weapons have all become common challenges facing people around the world.

The police publicize about the importance of biosecurity at the inspection station of the entry and exit border in Jiangsu Province. Photo: Chen Wei/CNSphoto

Legislation in biosecurity sector

The Convention on the Development, Production, Storage and Use of Chemical Weapons and the Destruction of Such Weapons (known as the CWC Treaty), The Convention on Biological Diversity, and other treaties have been passed by the UN. These are the consensus reached by the international community which advanced legislation in the biosecurity sector of many countries.

Biosecurity is a holistic concept that involves three forms of security concerning human health, animal and plant health, and ecological and environmental health. With the ability to spread quickly, widely and haphazardly, new emerging infectious diseases afflicting both humans and animals are listed as the first major latent danger of national biosecurity. It is in this context that biosecurity is included in the system of national security.

Biosecurity Law of the People's Republic of China (hereafter simplified as Biosecurity Law) was enforced starting from April 15. It aims to prevent and cope with biosecurity risks and safeguard people's health. The enactment of the law has consolidated the baseline of national biosecurity from a legal perspective. As the COVID-19 pandemic rages fast across many provinces with long chains of transmission and poly-centric routes of contagion, it is urgent that vaccination and lab research be expedited, and an interactive security network for humans, animals, and objects be set up. Given this, the Biosecurity Law can be taken as the legal basis for establishing a more effective, stringent system for virus prevention and control. As China's first-ever comprehensive law enacted in the sector of biosecurity, it should play a fundamental and guiding role.

Biosecurity is about sovereignty

Biological data security is an important link in the sector of biosecurity. According to the Biosecurity Law, China exercises sovereignty over human genetic resources and bio-resources of its own. In terms of biological data, the state has the management right to produce, store, transmit, and utilize the biological data of its own, and the right to prevent this biological data from being stolen, manipulated, monitored or destroyed. This is a new manifestation of national sovereignty in the biosecurity sector, which carries the attribute of data sovereignty.

Some research projects in the field of life science inevitably involve data cooperation and sharing beyond borders, and the control over cross-border flow of biological data has been a widely discussed issue in recent years. Cases of materials and information about human genetic resources being illegally transported across borders have also occurred from time to time.

In 2018, the Ministry of Science and Technology of the People's Republic of China (hereafter simplified as Ministry of Science and Technology) issued penalties concerning three cases in which medical records of female Chinese patients, human serum, and remnant diagnostic samples were illegally transported across borders. This was the first time that the Ministry of Science and Technology released details on the cases of administrative penalties concerning human genetic resources on its official website, a signal of stern supervision. There is an exclusive chapter in the Biosecurity Law which specifies human genetic resource, and bio-resource security, in which human genetic resources are mentioned more than 30 times.

Relationships highlighted

From a holistic perspective, there are four types of dialectical relationships highlighted by human genetic resources mentioned in the Biosecurity Law. First, both external security and internal security are valued. Relevant activities about biological data are restricted by the Biosecurity Law, which ensures that the data is protected both at home and when transported overseas. Second, both security pertinent to the territory and that of the people is valued. The human genetic resources mentioned in the Biosecurity Law include important information that is used to identify human features. This reflects that people's security is given a high premium in China.

Third, both traditional security and non-traditional security are valued. Non-traditional factors of biosecurity, when flaring due to tensions in international relations, may transform into contradictions in traditional security sectors of politics, the military, and land. Fourth, both China's own security and common security facing humans are valued. Under tight control by the Biosecurity Law, the spread of infectious diseases and pathogenic microorganisms for lab use can be effectively cut off. In doing so, China shoulders its responsibility in building a community of shared future for mankind.

To keep in line with China's efforts in pursuing the Second Centenary goal, the mentality of being prepared for unexpected eventualities is needed more than ever. A greater initiative to maintain national sovereignty, security, and interest is also called for. That is why a targeted prevention and control system for emergencies is important considering the big picture of national security. It is thus imperative that higher national governance capabilities are enacted in order to maintain adaptability in modern biosecurity, including medical and health sectors.

Hu Ruwei is an associate professor from the School of Public Health at the Sun Yat-Sen University.

GUO LIANG

'Algorithms mean power'…Do they?

Today, we have entered a murky era which is algorithm-based and data-centric. However, while murky, it is not dark. We find ourselves amidst the cloudiness of data but still can see the brightness looming ahead. We still have the right to choose where we are heading.

Exposure to 'algorithmic power'

In an era in which "data means resource," "data means power," and even "data means everything," humans, as social subjects in the traditional sense, are also being inevitably digitalized. We are now under the influence of algorithmic power in many aspects. Computational code means law, which can limit freedom, or make freedom possible. In such an era, everybody may become one-sided and lightweight, with algorithmic power gaining the upper hand, which thus further ascends as a type of prevailing superpower.

All living creatures are distinctive beings, with their daily existence displayed in vivid, multifold forms. However, in today's era when data means everything, everyone is condensed into and projected onto certain screens (mostly the screen of interest) with their appearance vague but personal data explicit. Before this kind of superpower, the subjectivity of humans faces the peril of being deprived. Individuals are "compressed" into a bunch of discrete eigenvalues which indicate their features. In such context, it is only necessary that the eigenvalues as a result of algorithmic rules satisfy specific demands of subjects. For example, commercial organizations summarize common characteristics that are beneficial to their profit gains and increasing income by adopting algorithmic rules in analyzing user information.

As a newly arisen power, algorithmic power does not take us as real subjects, but as objects which can be predicted and controlled by mathematic equations. For the owners of algorithmic rules, there is no necessity to regard the commoners as real subjects; they are only a set of statistics in constant change. As Zheng Ge, a professor of law from Shanghai Jiao Tong University, points out, the intelligent algorithm which is intangible has altered people's mode of production, ways of consumption, relations of production, and social relations. At the same time, it erodes civil rights by technological power which is more obscure, ubiquitous, and diversified. Humans who possess subjective initiatives are compelled to put on a cover which is digitalized and virtual.

Being forcibly under scrutiny is people's reality in contemporary times.

Being forcibly under exposure is people's reality in contemporary times. In the era of big data, we do not really have privacy, so long as heaps of de-personalized data can become precisely personalized after a series of deduction, reckoning, and calculation through algorithm. Today, the reality we face is: the state of personal identity having been detected or being detectable is usually the result of data analysis. To this, either the citizens as individuals or authorities feels impotent. The privacy is actually not "violated," but only "discovered"—the data does not infringe upon the public's privacy; it only reasonably and logically "discovered" the public's privacy. We could only feel pitifully helpless about the revelation of personal privacy.

Legal algorithm as an option

In view of this, we cannot stay aloof and indifferent. The wild horse of artificial intelligence should be saddled up with reason and the unruliness of algorithms needs to be regulated by laws. An algorithm should have its values, and efficiency should not become the sole goal that directs the values of algorithm. Values and reasons of humans should be injected into the interior of different types of algorithms.

A legal algorithm is a good option that attempts to solve technological problems through technology-based schemes. This means to refine the current legal knowledge in a more systematic way that is understandable by machines. The overarching goal is to take advantage of machines by letting machines understand legal knowledge—that is to let algorithms understand laws so as to better utilize algorithms. This is conducive to preventing algorithmic power from overly expanding. The option of "taking code as the law" can be understood as the same as "fighting poison with poison." Even if it is not possible that this legal approach is widely adopted in the future to regulate artificial intelligence, it can be used as a practical solution in individual cases. Since the most effective means for preventing a violent act is through stronger violence, the most viable way to restrict code is stronger code. Definitely, it does not mean to reject the guiding role of human reason and confinement by legal regulations.

Guo Liang is a post-doctoral from the Research Center of Science &Technology and Legal Studies at Zhejiang University.